

Printing Pages : 2

Paper Code : DCA-201 C (SVSU:2021-22/R)

Enrollment No.

COURSE NAME: PGDCA
I YEAR EXAMINATION

Subject Name: Data Structure Using C

Subject Code: DCA-201

[Time: 3:00 Hours]

Max. Marks: 70]

Section A: Long Questions: Attempt any three

[10×3=30]

1. What do you mean by Asymptotic Notations? Explain in details?
2. What do you mean by Binary Search Tree? Explain the properties of BST.
3. Write a brief note Dynamic programming?
4. What do you mean by Greedy Algorithm? Explain with an example.
5. Write a brief note on Queues? Explain the algorithms for inserting an element from Queues.

Section B: Short Questions: Attempt any five.

[5×5=25]

1. Write an algorithm for Quick sort?
2. What do you mean by Queue? Write an algorithm to insert an element at the front of Queue.
3. What do you mean by linked list? Explain the types of linked list in details.
4. Write a brief note on Stack?
5. What do you mean by analysis of algorithms?
6. What do you mean by Red Black Tree? Explain its properties.
7. What do you mean by Amortized Analysis?
8. What do you mean by merge sort?
9. Write an algorithm for Binomial Heap?
10. Explain Splay Trees with an example?

III. Objectives Question: Answer All Question

[15×1=15]

1. Which of the following is a linear data structure?

- a) Array b) AVL Tree c) Binary Tree d) Graphs

2. When a pop() operation is called on an empty queue, what is the condition called?

- a) Overflow b) Underflow c) Syntax Error d) Garbage Value

3. Which of the following is a Divide and Conquer algorithm?

- a) Bubble Sort b) Selection Sort c) Heap Sort d) Merge Sort

4. Which one of the following is the process of inserting an element in the stack?
 a) Insert b) Add c) Push d) None of the above
5. Which data structure is mainly used for implementing the recursive algorithm?
 a) Queue b) Stack c) Binary tree d) Linked List
6. Which of the following principle does Queue use?
 a) LIFO Principle b) FIFO Principle
 c) Liner Tree d) Ordered Array
7. How many Queues are required to implement a Stack?
 a) 3 b) 2 c) 1 d) 4
8. What do the leaves of an expression tree represent?
 a) Operand b) Operator c) Operation d) All of the above
9. Which technique is used in stack?
 a) FIFO b) LIFO c) FCFS d) SJFS
10. Which type of linked list comprise a node containing a pointer to predecessor as well as successor?
 a) Doubly Linked List b) Circular Linked List
 c) Both a & b d) None of the above
11. Which one of the following is the process of inserting an element in the stack?
 a) Insert b) Add c) Push d) None of the above
11. Which of the following is the Applications of a Linked List?
 a) Polynomial b) Set c) Sparse matrix d) All of the above
13. Which of the following is the Worst-case of Quick Sort?
 a) $O(n \log n)$ b) $O(N^2)$ c) $O(\log n)$ d) $O(n^2 / 4)$
14. How many Queues are required to implement a Stack?
 a) 3 b) 2 c) 1 d) 4
15. Which of the following data structure is not a Linear Data Structure?
 a) Array b) Link List c) Both of these d) Structure

31/05/2023

Printing Pages :2

Paper Code :MCA-203/DCA-204-B

C (SVSU:2022-23/A)

Enrollment No.

COURSE NAME: MCA/PGDCA

I YEAR/ II SEM EXAMINATION

Subject Name: Software Engineering

Subject Code: MCA-203/DCA-204-B

[Time : 3:00 Hours]

[Max. Marks: 70]

Section A: Objectives Question: Answer All Questions. [1x15=15]

1. Which of these does not affect different types of software as a whole?
a) Heterogeneity b) Flexibility
c) Business and social change d) Security
2. The fundamental notions of software engineering does not account for.
a) Software processes b) Software Security
c) Software reuse d) Software Validation
3. What are the types of requirements?
a) Availability b) Reliability
c) Usability d) All of the mentioned
4. Select the developer-specific requirement ?
a) Portability b) Maintainability
c) Availability d) Both Portability and Maintainability
5. Which one of the following is not a step of requirement engineering?
a) elicitation b) design c) analysis d) documentation
6. Which is the first step in the software development life cycle ?
a) Analysis
b) Design
c) Problem/Opportunity Identification
d) Development and Documentation
7. Which tool is use for structured designing ?
a) Program flowchart b) Structure chart
c) Data-flow diagram d) Module
- 8 . A step by step instruction used to solve a problem is known as
a) Sequential structure b) A List
c) A plan d) An Algorithm
9. In the Analysis phase, the development of the _____ occurs,
which is a clear statement of the goals and objectives of the project.
a) documentation b) flowchart
c) program specification d) design
10. Who designs and implement database structures.
a) Programmers
b) Project managers
c) Technical writers
d) Database administrator

11. Debugging is:

- a) creating program code
- b) finding and correcting errors in the program code
- c) identifying the task to be computerized
- d) creating the algorithm

12. The reason for software bugs and failures is due to

- a) Software companies
- b) Software Developers
- c) Both Software companies and Developers
- d) All of the mentioned

13. What is Software?

- a) Software is set of programs
- b) Software is documentation and configuration of data
- c) Software is set of programs, documentation & configuration of data
- d) None of the mentioned

14. Which of these does not account for software failure ?

- a) Increasing Demand
- b) Low expectation
- c) Increasing Supply
- d) Less reliable and expensive

15. What are attributes of good software ?

- a) Software maintainability
- b) Software functionality
- c) Software development
- d) Software maintainability & functionality

Section B: Long Questions: Attempt any three [10×3=30]

1. What do you mean by the term Software Engineering? What are the roles of a software engineer?
2. What do you mean by Requirement Engineering? What makes a "Good" Software Requirement?
3. What do you understand by the review of design and Code? Who involve in review process?
4. Define the Software Configuration management in detail?
5. What are the role and responsibilities of a System Analyst ?

Section C: Short Questions: Attempt any five [5×5=25]

1. Define the Term Software Engineering?
2. What are the Software Attributes?
3. What do you understand by object Oriented Life Cycle
4. Define the Testing?
5. Explain the Different Requirement Engineering Techniques.
6. Design an ER Diagram for the University Administration system?
7. Define verification and validation?

30/05/2023

Printing Pages :2

Paper Code :DCA-202

B (SVSU:2022-23/R)

Enrollment No.

PGDCA

I YEAR II SEMESTER EXAMINATION

Subject Name: Operating System

Subject Code- DCA-202

[Time : 3:00 Hours]

[Max. Marks : 70]

I. Objectives Question: Answer All Question

[15×1=15]

1. What is operating system?

- (a) collection of programs that manages hardware resources
- (b) system service provider to the application programs
- (c) link to interface the hardware and application programs
- (d) All of the mentioned

2. To access the services of operating system, the interface is provided the service?

- a) System Calls b) API c) Library (d) Assembly instructions

3. Which one is the objective of multitasking?

- (a) Have multiple programs waiting in a queue ready to Run
- (b) Have some process running at all times
- (c) To minimize CPU utilization
- (d) None of the mentioned

4. In multiprogramming environment?

- (a) A single user can execute many programs at the same time
- (b) The processor executes more than one process at a time
- (c) the programs are developed by more than one person
- (d) More than one process resides in the memory

5. Demand Paging is a?

- (a) solves the memory fragmentation problem
- (b) allows modular programming
- (c) allows structured programming D) avoids deadlock

6. What are the necessary conditions to occur the deadlock?

- (a) Sharable resource, Hold and wait, Preemption, Circular wait
- (b) Mutual exclusion, Hold and wait, No preemption, Circular wait
- (c) Mutual exclusion, wait, Preemption, Circular wait
- (d) None of the above.

7. Which one is a category of operating system's task?

- (a) Memory management b) File Management
- (c) Process management d) All of the above

8. The operating system manages?

- (a) Memory b) Processor
- (c) Disk and I/O devices d) All of the above

9. Round Robin scheduling is most suitable for?
 - (a) time shared OS
 - (b) distributed OS
 - (c) real time OS
 - (d) an Ordinary OS
10. A process is created and is initially put in the?
 - A) Ready Queue
 - b) Device Queue
 - c) I/O queue
 - d) Waiting Queue
11. A thread is a?
 - (a) Task
 - b) process
 - c) Program
 - d) Light Weight Process
12. Which type of condition can be prevented by defining a linear ordering of resource types?
 - (a) Mutual Exclusion
 - b) Hold and Wait
 - c) Circular Wait
 - d) Channel Wait
13. The simplest directory structure is?
 - (a) single level directory
 - b) two level directory
 - c) tree structure directory
 - d) none of these
14. Semaphore is a?
 - (a) Integer variable
 - b) A program only
 - c) A window type
 - d) A process only
15. FIFO scheduling is?
 - (a) preemptive scheduling
 - b) non preemptive scheduling
 - c) deadline scheduling
 - d) fair share scheduling

II Long Question : Answer Any Three [3x10=30]

1. Explain Process states with the help of a suitable diagram.
2. What is swapping and what is its purpose?
3. What do you mean by Deadlock? Explain deadlock recovery and deadlock Avoidance..
4. Write a brief note on the following terms:
 - I) Scheduler
 - II) Starvation
 - III) Compaction
5. What do you mean by contiguous memory allocation? Explain in detail.

III. Short Question: Answer any Five [5x5=25]

1. What does PCB contain? Explain.
2. What do you mean by Inter-process communication (IPC) with the help of a diagram?
3. Explain OS structure?
4. What is virtual memory? Mention its advantages
5. Write a short note on:
 - (i) MultiTasking OS
 - (ii) MultiProgramming OS
6. How an operating system manages file in computer?
7. What do you virtual memory? Explain its advantages.